NATURAL EVENTS ACTION PLAN FOR HIGH WIND EVENTS

DOÑA ANA COUNTY

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EXECUTIVE SUMMARY

Doña Ana County, New Mexico, experienced numerous exceedances of the 24-hour National Ambient Air Quality Standard (NAAQS) concentration limit for Particulate Matter 10 microns or less (PM10), recorded during 1994-1997 by monitors operated by the Air Quality Bureau (AQB) of the New Mexico Environment Department (NMED). Since the number of days with exceedances was more than the number allowed by the standard, the county is in violation of the PM10 NAAQS. The Air Quality Bureau's analysis of wind data and other information regarding conditions during the exceedances indicated that all but a few were caused by high winds, which lift and carry dust from exposed dry soil.

Recognizing the affect that certain uncontrollable natural events, such as high winds, wildfires, and volcanic/seismic activity can have on the NAAQS for PM10, the Environmental Protection agency (EPA) issued a Natural Events Policy (NEP) on May 30, 1996. The NEP set forward procedures through the development of a Natural Events Action Plan (NEAP) for protecting public health in areas where the PM10 standard may be violated due to these uncontrollable natural events. The guiding principles of the policy are:

1. Federal, State, and local air quality and government agencies must protect public health;

2. The public must be informed whenever air quality is unhealthy;

3. All valid ambient air quality data should be submitted to the EPA Aerometric Information Retrieval System (AIRS) and made available for public access;

4. Reasonable measures safeguarding public health must be taken regardless of the source of the PM10 emissions;

5. Emission controls should be applied to sources that contribute to exceedances of the PM10 NAAQS when those controls will result in fewer violations of the standards.

In response to Doña Ana County's exceedances of the PM10 NAAQS, the New Mexico Air Quality Bureau, in conjunction with the City of Las Cruces Planning Department, the Doña Ana County Community Development Department, community stakeholders, and other agencies present the following NEAP for the Doña Ana County area.

The plan provides analysis and documentation of the exceedances as attributable to uncontrollable natural events due to unusually high winds. In addition, the NEAP is designed to protect public health, educate the public about high wind events, mitigate health impacts on the community during future events, and identify and implement Best Available Control Measures (BACM) for man-made sources of windblown dust.

LIST OF ACRONYMS

AQB	Air Quality Bureau
BACM	Best Available Control Measures
BLM	Bureau of Land Management
BMPs	Best Management Practices
DTC	U.S. Army Developmental Test Command
EDD	New Mexico Economic Development Department
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
FSA	Food Security Act
I-25	Interstate 25
INRMP	Integrated National Resource Management Plan
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NEAP	Natural Events Action Plan
NEP	Natural Events Policy
NEPA	National Environmental Policy Act
NMED	New Mexico Environment Department
NMSHTD	New Mexico State Highway and Transportation Department
NMSU	New Mexico State University
NRCS	Natural Resources Conservation Service
PM10	Particulate Matter of the size 10 microns or less
PSI	Pollution Standard Index
SCS	Soil Conservation Service
SWCD	Soil and Water Conservation Districts
USDA	United States Department of Agriculture
USDI	United States Department of Interior
UV	Ultraviolet
WSMR	White Sands Missile Range

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INTRODUCTION

BACKGROUND

Doña Ana County comprises 3804 square miles in south-central New Mexico, bordering on El Paso County, Texas, and the state of Chihuahua, Mexico to the south. Of Doña Ana County's 3804 square miles, approximately 75 % is federal land and 12 % is state land, with the remainder privately held. The area within the county's boundaries is topographically diverse and includes mountain ranges, hills, valleys and deserts (see figure 1). The elevation range for the county is 3730 ft. to 9012 ft. The Rio Grande runs the length of the county from the northwest corner to the south-central border where New Mexico, Texas and Mexico come together. The Rio Grande meanders down through the fertile soils of the Rincon (northern) and Mesilla (southern) Valleys. The primary population areas are found within the Mesilla Valley, with the Las Cruces City limits extending to the east plateau below the Organ Mountains. The Organ Mountains toward the eastern side of the county separate the Mesilla Valley from White Sands Missile Range and Wind Sands National Monument. The western edge of the county tops out of the valley on a wide-open desert plateau.

The climate is generally mild and semiarid, averaging 350 days of clear weather annually. Annual precipitation averages 8.5 inches of rainfall and 3 inches of snowfall. Prevailing winds are generally southwesterly. Windstorms are common during the late winter and through the spring months. It is due to these high velocity winds that Doña Ana County experiences most of the particulate matter exceedances for the area. A handful of the windstorms encountered over the years in Doña Ana County have been associated with the entire southwestern U.S. region.

Doña Ana County is the second most populated county in the state of New Mexico. The county seat, Las Cruces, has been ranked as one of the fastest growing communities in the United States for the past decade. The population has risen dramatically since 1900 and is expected to continue to grow at a rapid pace (4-6%) during the next 20 years, and is anticipated to have more than 300,000 people by 2015. The U.S. Census Bureau estimates the county population for July 1, 1999 to be 170,361. The primary areas of growth have been and continue to be in the Las Cruces metropolitan area and the southern portion of the county (see figure 2). While rapid population growth has occurred around the city of Las Cruces (central) and in the southern section of the county, the northern portion of the county remains primarily rural in nature.

Doña Ana County, New Mexico, experienced numerous exceedances of the 24-hour National Ambient Air Quality Standard concentration limit for Particulate Matter 10 microns or less (PM10), recorded during 1994-1997 by monitors operated by the Air Quality Bureau (AQB) of the New Mexico Environment Department (NMED). Since the number of days with exceedances was more than the number allowed by the standard, the county is in violation of the PM10 NAAQS. The Air Quality Bureau's analysis of wind data and other information regarding conditions during the exceedances indicated that all but a few were caused by high winds, which lift and carry dust from exposed dry soil.

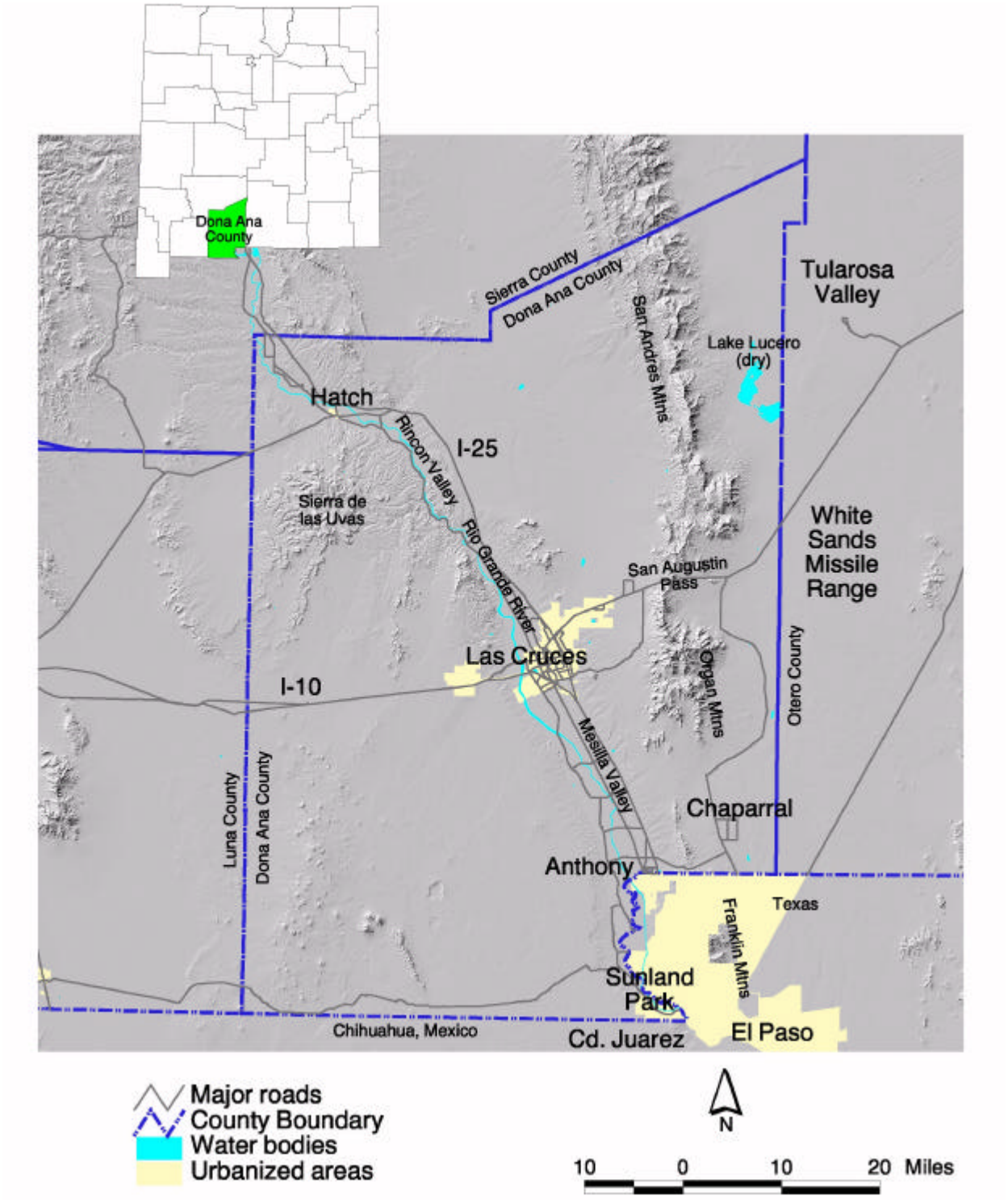

Figure 1. Doña Ana County with major landmarks, mountains and towns.

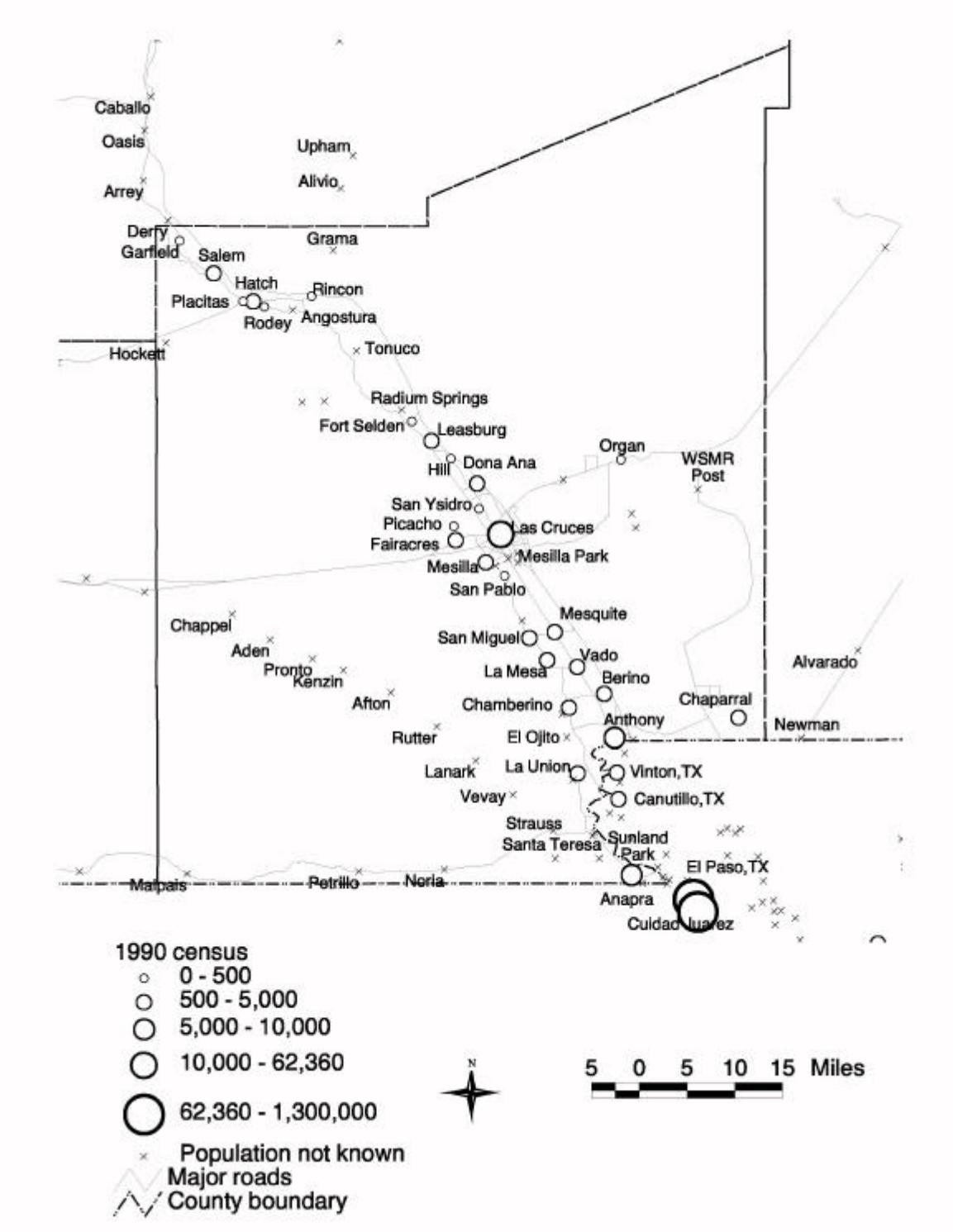

Figure 2. Populated areas within and surrounding Doña Ana County. Populations are based on the 1990 decennial census.

Given that high wind events are a type of natural event covered by the Natural Events Policy (NEP), the NMED/AQB is seeking to fulfill requirements set forth in that policy. As the local governments in Doña Ana County and the Bureau work towards the goal of an adequate plan, the County has continued to experience exceedances of the PM10 standard caused by high winds.

The Natural Events Policy (refer to Appendix A) required that the state air quality agency submit a Natural Events Action Plan (NEAP) to the U.S. Environmental Protection Agency (EPA) by November 30, 1997. The NMED/AQB submitted to EPA Region VI a NEAP for Doña Ana County dated November 25, 1997 (refer to Appendix A). EPA Region VI reviewed the Doña Ana County NEAP and indicated, in a letter date February 23, 1998 (refer to Appendix A), that additional information should be provided by NMED/AQB in order to finalize a comprehensive plan. An Addendum (see Appendix A) to the original NEAP submittal was presented to EPA Region VI on April 3, 1998, providing additional information. In further fulfillment of the Doña Ana County NEAP requirements, the NMED/AQB has continued working with local governments and stakeholders on the implementation processes to satisfy the requirements of controlling and abating wind generated dust from human caused sources. The NMED/AQB has complied this document for the Doña Ana County NEAP, superseding previously submitted documents.

EPA NATURAL EVENTS POLICY

A. Background

On May 30, 1996, EPA issued the Natural Events Policy in a memorandum from Mary D. Nichols, Assistant Administrator for Air and Radiation. This memorandum announced EPA's new policy for protecting public health when the PM10 NAAQS are violated due to natural events.

By law, the usual consequence when pollutant levels in an area violate one of the NAAQS is that the area is declared non-attainment for that pollutant. The state must then develop and implement a plan for measures that will be taken to reduce emissions of the pollutant and bring the ambient levels of the pollutant back within standards. Such plans must include stringent pollution control measures for new and existing industries and other sources of the pollutant.

Federal law and policies recognize that declaring an area non-attainment and requiring stringent controls on industrial sources are not appropriate responses where natural events contribute significantly to exceedances of the standard. EPA's Natural Events Policy memorandum of May 30, 1996, sets forth the requirements for a more appropriate approach for these natural events. Under this policy three categories of natural events are identified as affecting the PM10 NAAQS: (1) volcanic and seismic activity; (2) wildland fires; and (3) high wind events. Only high wind events will be addressed in this NEAP, as these events are relevant to the exceedances experienced in Doña Ana County. The Natural Events Policy defines high wind events as follows:

"High Winds: Ambient PM10 concentrations due to dust raised by unusually high winds will be treated as due to uncontrollable natural events under the following conditions: (1) the dust originated from nonanthropogenic sources, or (2) the dust originated from anthropogenic sources controlled with best available control measures (BACM)."

B. Natural Events Action Plan

If natural events cause ambient concentrations of PM10 to violate a NAAQS, a state has two choices: (1) allow the area to be declared non-attainment, or (2) develop and submit to EPA a plan describing what will be done to address future events. The following is a summary of the EPA guidance regarding development of a NEAP as provided in the Natural Events Policy:

1. Analysis and documentation of the event should show a clear causal relationship between the measured exceedance and the natural event. The type and amount of documentation provided should be sufficient to demonstrate that the natural event occurred, and that it impacted a particular monitoring site in such a way as to cause the PM10 concentrations measured. Documentation of natural events and their impacted on measured air quality should be made available to the public for review.

2. Establish public notification and education programs. Such programs may be designed to educate the public about the short-term and long-term harmful effects that high concentrations of PM10 could have on their health and inform them that:
    a. Certain types of natural events affect the air quality of the area periodically,
    b. A natural event is imminent, and
    c. Specific actions are being taken to minimize the health impacts of events.

3. Minimize public exposure to high concentration of PM10 due to future natural events. Programs to minimize public exposure should:
    a. Identify the people most at risk,
    b. Notify the at-risk population that a natural event is imminent or currently taking place,
    c. Suggest actions to be taken by the public to minimize their exposure to high concentration of PM10, and
    d. Suggest precautions to take if exposure cannot be avoided.

4. Abate or minimize appropriate contributing controllable sources of PM10. Programs to minimize PM10 emissions from high winds may include the application of Best Available Control Measures (BACM) to any sources of soil that have been disturbed by anthropogenic activities. The BACM application criteria require analysis of the technological and economic feasibility of individual control measures on a case-by-case basis. The NEAP should include

analyses of BACM for contributing sources. If BACM are not defined for the anthropogenic sources in question, step 5 below is required.

5. Identify, study and implement practical mitigating measures as necessary. The NEAP may include commitments to conduct pilot tests of new emission reduction techniques. For example, it may be desirable to test the feasibility and effectiveness of new strategies for minimizing sources of windblown dust through pilot programs. The plan must include a timely schedule for conducting such studies and implementing measures that are technologically and economically feasible.

6. Periodically reevaluate:
    a. The conditions causing violations of a PM10 NAAQS in the area,
    b. The status of implementation of the NEAP, and
    c. The adequacy of the actions being implemented.

    The State should reevaluate the NEAP for an area every 5 years at a minimum and make appropriate changes to the plan.

7. The NEAP should be developed by the State in conjunction with the stakeholders affected by the plan.

8. The NEAP should be made available for public review and comment and may be (but is not required to be) adopted as a revision to the State Implementation Plan (SIP) if current SIP rules are not revised.

9. The NEAP should be submitted to the EPA for review and comment.

The following text describes the Doña Ana County NEAP and its conformance with the previously described EPA guidance on natural events.

NATURAL EVENTS ACTION PLAN FOR DOÑA ANA COUNTY

NEAP ELEMENT 1: DOCUMENTATION & ANALYSIS

The state Air Quality Bureau operates a network of monitoring stations to measure the concentration of criteria pollutants, one of which is particulate matter. The Bureau maintains seven PM10 monitors and five PM2.5 monitors throughout the County (see figure 3 for monitor locations). Monitoring sites are selected according to a variety of factors. Many are set up in population centers, where many people could be exposed should high levels of pollution occur. Others are in areas where pollutant levels are likely to be high. Monitoring data is tracked and the reasons investigated behind any exceedance that occurs. This monitoring data is then complied and submitted to EPA.

In New Mexico, the state Environment Department's Air Quality Bureau is responsible for identifying exceedances of the NAAQS caused by high winds. The Bureau must first

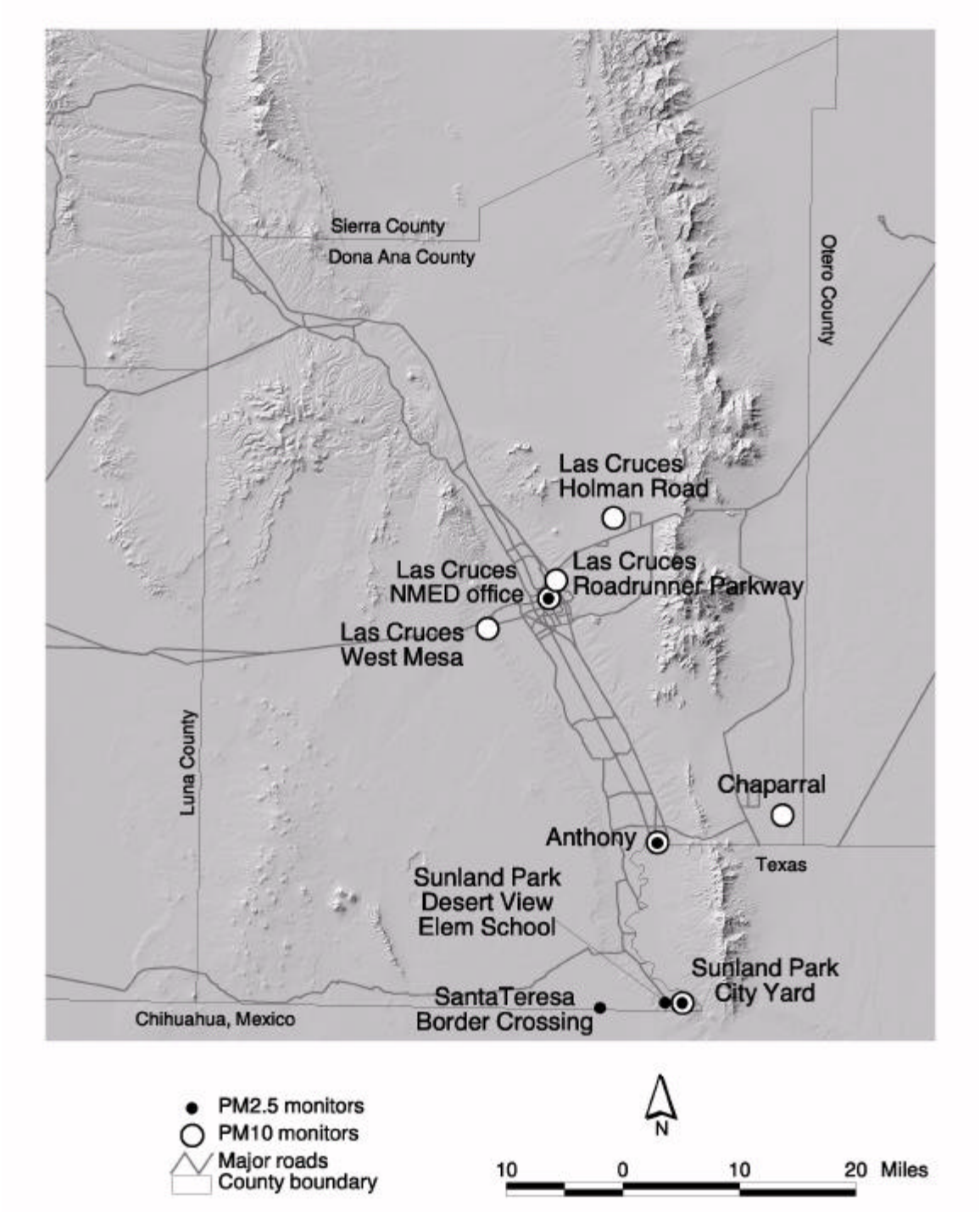

Figure 3. PM10 and PM2.5 monitors operated by the NMED Air Quality Bureau. Note that PM10 monitoring ended in 1998 at the Santa Teresa Border Crossing and Sunland Park Desert View Elementary School sites.

mark the exceedances due to high winds with a special notation (called a "flag") in EPA's national database of ambient air monitoring data. Then the Bureau must prepare a document clearly showing, by analysis of weather data and other information, that the exceedances would not have occurred if not for the high wind events. The state's documentation of these high wind events and their impact on air quality must be made available to the public. The public may review and comment on whether the documentation convincingly shows a causal relationship between the high wind events and the exceedances.

Documentation prepared and submitted for high wind events that occurred during January 1995 through March 1997 is available form the NMED/AQB or a summary of that PM10 monitoring data can be found in Appendix A as Attachment 2 to the NEAP dated November 25, 199. Documentation and analysis of high wind events that occurred during April 1997 through June 2000 can be found in a Document titled "Analysis of PM10 Exceedances Caused by High Winds: January 1997 - June 2000". This document is available from NMED/AQB and has been submitted to EPA with this plan (as a separate document).

NEAP ELEMENT 2: PUBLIC EDUCATION PROGRAMS

The purpose of this program is to inform and educate the public about high wind events that occur in the area, the associated high PM10 levels, and potential health effects. Elements of the program include: 1) informing the public when the air quality in the area is unhealthful; 2) explaining what the public can expect when high wind events occur; 3) how to minimize their exposure to high concentrations of PM10 during high wind conditions; and 4) what steps will be taken to control dust emissions during future high wind conditions.

Early on in Doña Ana County's NEAP development process a Health Issues Working Group was formed to develop proposals for public education materials and programs. This group was co-convened by representatives of the State Environment Department and the State Health Department's District Office located in Las Cruces. The group included representatives of local government, locally-based Health Department staff with expertise in public health education, key local health care providers including school nurses, and members of a public health advocacy group.

Actions that have been taken to date for fulfilling the education program include:

- An informational and health-related brochure titled "Dust Storms and Health" has been developed in English and Spanish (see Appendix B). This brochure was distributed during the spring wind season of year 2000, and will be distributed throughout the county for future high wind seasons. This brochure has also been a popular handout during presentations and open houses.

- A fact sheet titled "Particulate Air Pollution; Air Pollution from Natural Events" was developed in August 2000 (see Appendix B). This fact sheet

provides general health information, defines the windblown dust problem in Doña Ana County, as well as, describing the Natural Events Policy and the opportunity it offers to areas plagued by PM10 problems due to Natural Events.

It has been used as an educational handout at the Environment Department's open houses and presentations on the Doña Ana County NEAP, and in informational mailings. It will also be added to the Environment Department's web-site under the section concerning the Doña Ana County NEAP.

- The Environment Department also developed a NEAP Briefing Document (see Appendix B). This document outlines the PM10 problem facing Doña Ana County and describes what can be done about it. It defines why PM10 is a public health issue and answers many of the questions we have received concerning the NEAP.

  It has been used as an educational handout at the Environment Department's open houses and presentations on the Doña Ana County NEAP, and in informational mailings. It will also be added to the Environment Department's web-site under the section concerning the Doña Ana County NEAP.

- Formal presentations have been made on the Doña Ana County NEAP in the following settings: 1) the New Mexico Lung Health Summit; 2) the New Mexico Environmental Health Conference; 3) two stakeholder meetings; and 4) public hearing on erosion control ordinance before County Commissioners. These presentations began with why PM10 is a health concern and who is at risk, discussed what options are available when the PM10 standard is violated, what dust controls are available, and how the different sectors of the public can help in the NEAP development process. The presentations were tailored for each audience, however a representative example from one presentation is provided in Appendix B.

- The NMED/AQB held open houses designed to provide information and solicit ideas about the Natural Events Action Plan for reducing dust, sustaining growth and improving health in the area. The NMED solicited the public's thoughts, ideas, comments, and concerns in order to tailor the plan to local needs. These open houses where held in October and November of 2000 throughout the County including, one in Hatch, two in Sunland Park, and two in Las Cruces.

  A final open house is scheduled for early January 2001, to display to provide the public with information on the final NEAP submitted to EPA. It will also stress the importance of continued public input since this plan is to be reevaluated at least every five years.

- Three television interviews were given during several of the open houses concerning the NEAP, why it is a health concern and what can be done to reduce PM10 level near populated areas. Two of the interviews were given to the local public television station located on the campus of New Mexico State University and the other to a local Spanish television station.

NEAP ELEMENT 3: MINIMIZE PUBLIC EXPOSURE TO HIGH CONCENTRATION OF PM10 DUE TO FUTURE NATURAL EVENTS.

The Natural Events Policy states that advisories should inform the public that a dust episode is imminent, currently is taking place, or likely to occur. The working group on health issues has questioned both the feasibility and effectiveness of warning of imminent or on-going dust episodes, which would be based on either weather forecasting or real-time measurements. The working group noted that dust storms, unlike, for example, elevated levels of carbon monoxide, are readily observable by the public. The group therefore suggested an alternative, common-sense approach based largely on public education. The public education campaign includes the following information:

1. episodes of unhealthful dust levels are likely to occur in this area, especially during the windy season of late winter and early spring;

2. individuals should take precautionary measures when they see that a dust storm in progress;

3. precautionary measures include staying indoors with windows closed and avoiding outdoor exercise and activities during dust storms;

4. individuals who wish to become better able to distinguish unhealthful levels of dust may consult the previous day(s) the Pollution Standard Index (PSI) values for PM10, as published on the Environment Department's web-site (since February 1999), and compare this with their perception of dustiness.

The working group investigated and reject two other options: 1) issuance of advance warnings of dust episodes based on the National Weather Service's issuance of high wind advisories or warnings, as is done in Clark County, Nevada, and 2) basing advisories on real-time data from continuous PM10 monitors. The group rejected these options because such warnings or advisories would often be in error, resulting in loss of credibility for the entire education program and failure of individuals to take precautions to protect health.

The consensus of the working group was that most people, in deciding whether they should take precautions, would base their actions on their own direct observations of the dustiness and would discount any official advisory (or absence of the same) if it was contradicted by their observations. A public education campaign was recommended as a means of heightening awareness of the health hazards of high dust levels and informing

susceptible individuals and their caregivers what precautions they should take when dust levels are high.

The working group proposed that the public education campaign consist of the following elements.

1. A brochure, in English and Spanish, explaining the health hazards of high dust levels and describing ways to reduce one's exposure (see brochure, Appendix B). This brochure was finalized in March 2000 and a small printing was provided to the local governments, State Health Department's District Office, and the State Environment Department's local field office. A mass printing was finalized in May 2000, and again provided to these same organizations for distribution. Health Brochures were also handed out at 5 local open houses designed to inform the public of the health concerns surrounding dust and to solicit comments on the NEAP for the county.

2. A dust health advisory to be published in monthly during the spring windy season as a paid advertisement in the Las Cruces daily newspaper (the SunNews). See Appendix B for the prepared press release.

3. Publication of PSI levels for PM10 in the news media; publication of these levels would not only heighten awareness generally, but would help susceptible individuals and their caregivers to "calibrate" their visual observations of dustiness so that they can better distinguish unhealthful levels. Currently, to fulfill EPA grant commitments, the Environment Department issues press releases listing the PM10 exceedances for the previous quarter. However this information has not been published by the local news media. We are continuing to work with the local media on publishing NEAP-related press releases. The Environment Department has added a section on its web-site for the Doña Ana County NEAP including the publication of the previous days(s) PSI levels for PM10, as a means of heightening public awareness of the problem.

NEAP ELEMENT 4: DETERMINATION AND IMPLEMENTATION OF BACM

As a required element of the NEP, BACM must be implemented for significant anthropogenic sources contributing to PM10 NAAQS exceedances. EPA defines best available control measures for PM10 as techniques that achieve the maximum degree of emissions reductions from a source as determined on a case-by-case basis considering technological and economic feasibility.

A. Types of Activities that Produce Windblown Dust in Doña Ana County

Windblown dust in Doña Ana County occurs both from natural and human-caused sources. While dust is common in undistributed areas throughout the west, it becomes much more prevalent where natural soils have been disturbed by human activities. This is because natural soils have a tendency to form a mineral and organic crust that is resistant to erosion by wind. Human activities can remove or break this crust, allowing

dust to escape more easily. Also, even sparse desert vegetation provides protection to the soil surface by serving as a windbreak and organic binder. When human activities remove vegetation, the soil is more susceptible to wind, and as a result, airborne dust is produced.

While little can be done to decrease windblown dust from the open desert during periods of highest winds, there are a variety of things that a community can do to decrease dust caused by human activities. The dust from human activity tends to be concentrated close to populated areas, because that is most often where native soils are disturbed. Therefore it seems reasonable to expect that the majority of dust inhaled by community members is generated locally rather than from the surrounding desert. Of course there are those instances when regional wind (dust) storms will occur, overriding some, if not all, efforts made locally to control human-caused sources of windblown dust. It is important to understand and target those blustery spring days that are much more common in the area than the sporadic regional dust storms. A handout was developed in the Fall of 2000 for use with open houses, stakeholder meetings, and mailings as a reminder of what the situation was concerning Doña Ana County's PM10 exceedances, to understand what it is that needs to be controlled, identifying potential significant man-made sources within the county, and what potential BACMs may be useful for different situations. This handout is titled "Suggested Best Available Control Measures (BACM) for Reducing Windblown Dust From Manmade Sources in Doña Ana County" and can be found in Appendix C.

B. Identification of Potentially Significant Sources of Wind Generated PM10 and Stakeholders.

In April 1998, a Sources and Control Working Group was assembled in a partnership between the City of Las Cruces Planning Department and NMED/AQB staff. This working group was made up of a wide variety of members including planning staff from local governments, technical experts in civil engineering and wind erosion, and representatives from the construction industry and agriculture.

The first task for the group was to identify the significant contributing human caused sources of wind generated dust. Since dust plumes are readily visible to the human eye it was decided that the "look out the window approach" during the wind season would be the most logically appropriate method to determine significant sources. It is believed that this method would be more generally acceptable to the public since they also see these plumes for themselves and are more apt to believe what they see as opposed to a computer generated model. This group worked primarily with the City of Las Cruces planning staff within the metropolitan area identifying sources for use in the development of a new dust control ordinance for the City of Las Cruces.

The group then identified a list of potential stakeholders throughout the county that they felt were outside the boundary of the city's proposed ordinance. The list of potential sources and stakeholders, initially developed by the Sources and Control Working Group, has been cultivated and refined further by NMED/AQB staff.

C. Sources of Wind Generated Dust in Doña Ana County

When Doña Ana County experiences high dust levels during high winds, most of the dust in the air is wind-generated from exposed areas of loose soil. The sources of wind-generated dust in Doña Ana County are similar to those in other communities that are developing, or have developed, plans to control airborne dust. There are several man-made, wind borne dust sources that are commonly encountered in urban and rural areas across the western U.S. The following list shows the major sources but not necessarily in the order of their significance:

- Soil disturbance during construction projects (primarily a problem during windy conditions).
- Disturbed land areas that are vacant, where construction is pending or due to recreational activities
- Unpaved rural roads and unpaved high-traffic industrial areas
- Unpaved playgrounds and unpaved parking lots
- Wind blown emissions from tilled fields
- Undisturbed desert areas during the highest winds
- Military training exercises
- Unpaved equipment lots (laydown yards)

D. Other Sources of Particulate Matter in Doña Ana County

The purpose of the NEAP is to reduce sources of man-made, wind-generated dust, as opposed to other sources of PM10. Other sources of PM10 within Doña Ana County include point sources that have air quality permits, agricultural wood burning, domestic wood burning for heating purposes, and dust emitted from shoulders of paved roads kicked up by vehicular movement. As these sources have not been shown to cause exceedances and are not wind generated, the NEAP does not address these sources of PM10.

E. Potentially Important Stakeholders

While all citizens of Doña Ana County can be considered potential stakeholders concerning this issue, we have chosen to define stakeholders as those that have responsibility for potentially significant, human caused sources of windblown dust. The original list of stakeholders has been further refined to determine which entities are critical to the success of the NEAP. Critical issues included the amount of land under control by respective entities, the types of operations and facilities controlled, and the necessity of these entities to control human caused, wind generated dust in order for the implementation of the NEAP to show the results necessary for success.

The list was prioritized and a primary group of stakeholders was identified as being the most necessary to implement BACM for success of the NEAP. These agencies perform most of the ground disturbances related activities within the county, or have either direct or indirect control of large acreages of cleared land. This primary group's activities also

appear to have the greatest impact on the populated areas. Furthermore, several agencies within the primary stakeholder group are able to influence other groups by implementing local or regional regulations covering large areas of the county.

A secondary group of identified stakeholders includes agencies or organizations with control over very large tracts of natural desert lands within the county or smaller tracts of land that are cleared or may be disturbed by construction. This secondary group appears to have much less of an impact on populated areas. Moreover, in most cases, this group will be influenced by the passage of local dust control ordinances or by Bureau of Land Management (BLM) and Natural Resource Conservation Service (NRCS) best land use management tools.

While the NMED/AQB is working with several of the secondary stakeholders such as the BLM and NRCS, the Department feels that at this time there is a greater need for the development and success of the NEAP, to focus on the primary stakeholders who could potentially create the greatest hazards associated with windblown dust and/or contribute the most in controlling the problem in Doña Ana County. Secondary stakeholders will be kept informed of the progress of the NEAP throughout the various stages of the plan and the Department will work with these entities to ensure that they are aware of local or county ordinances they may be required to abide by. The Department will also periodically review the NEAP and at that time will reevaluate the secondary stakeholders that have been identified to determine if additional agreements are needed.

The primary stakeholders working with the NMED/AQB on the development of BACM implementation for the Doña Ana County NEAP include:

Doña Ana County
City of Las Cruces
State Highway Department
New Mexico State University
White Sands Missile Range

F. Selecting, developing and using BACM

The NEAP allows for the use of one or more BACM to reduce man-made wind-generated dust. BACM include methods that vary greatly in effectiveness and cost; these variations may be due to the size of the area requiring dust control, the ground slope of the area, the soil type involved and the amount of human disturbance activity in an area. Larger areas may require several methods of dust control to adequately address problems of blowing dust.

The following list does not represent all types of dust control methods, and new methods are being developed all the time. Community members within Doña Ana County can utilize existing or new types of dust control, although they should be thoroughly investigated for benefits and drawbacks. However, these measures have been successfully implemented in similar arid regions.

1. Revegetation and Organic Mulches

Restoring a natural or approved xeriscaping vegetative cover or using organic mulch can be an excellent method of reducing windblown dust. Native or approved xeriscaping vegetation greatly reduces the impact of wind on exposed soils and increases the organic content and strengthens soil structure so wind doesn't lift soil into the air. Organic mulches added to the top layer of soil do the same thing and help establish new vegetation. Native or approved xeriscaping vegetation also reduces the growth of noxious weeds and reduces the need to blade open areas, or use herbicides to control weeds. Using native and approved xeriscaping vegetation increases the beauty of the land and provides a long-term method of decreasing windblown dust.

Common forbs used to revegetate areas include yarrow, penstemon, aster, and primrose. Common native grasses include wheatgrass, grama, muhly, and dropseed. However, care must be taken to avoid introducing or promoting the spread of noxious weeds and plants. Certified and live seed mixtures are required to prevent introduction of these exotic plants. It is recommended that those wishing to use this method of dust control contact State or University representatives who are knowledgeable about revegetation prior to performing these options.

2. Erosion Control Mats and Geotextiles

Erosion control blankets or mats, and geotextiles, are types of erosion control product that are used to reduce both wind and water erosion on slopes. They shield scraped and bare ground from both wind and rain; they can be made of woven organic materials like straw or wood fibers, or woven plastics, or a combination of both. They are expensive but very effective when used properly, and may be the only way to control dust erosion on steep slopes or erosion-prone soils. They are usually used under rock or wood mulches to prevent or reduce the amount of weeds that can grow through the mulch. They are often used in conjunction with revegetation to hold seeds and plants in place while growth is established. They can provide long-term dust control, especially for landscaped areas that are being established.

There are permanent and temporary covers; the permanent types are used for channel reinforcement and steep slope landscaping, and temporary types are used for establishment of landscaping on relatively gentle slopes. Temporary geotextiles degrade anywhere from 10 months to 36 months and completely disintegrate since they are made of biodegradable materials and UV accelerated photodegradable plastics. Manufacturers recommend a 24-month product since it may take two growing seasons to establish 50-75% ground cover in the arid southwest.

These products are much more effective than rock mulch (riprap) when combined with a vegetative cover in controlling erosion. Large riprap also tends to become habitat for snakes and rodents in arid climates. Water retention in the soil is also far greater than for riprap. *Improper installation is the most common failure mode for erosion control*

blankets. They require an upslope trench so that the upper margin of the blanket is buried, and proper placement of stakes (staples). Installation of erosion control mats is not labor intensive, and typically, one person can perform installation of the blanket rolls.

3. Dust Suppressants and Soil Stabilizers

Water has long been used for the control of dust in arid regions. However, water use has increased greatly over the last decade in Doña Ana County and is being used primarily for domestic and agricultural use; the cost of water has also increased greatly within the County. Water can be ineffective for dust control since dry soils are initially resistant to the influx of water; large amounts of water applied during short intervals are often necessary for effective dust control.

Water-soluble surfactants are often added to water to increase the wetting power by breaking down the initial resistance of dry soils to water. Surfactants are relatively inexpensive and greatly decrease the amount of water necessary during dust control operations.

Chemical dust suppressants and soil stabilizers can be useful in reducing the tendency of fine-grained and loose soils to produce large amounts of windblown dust. They bind fine soil particles into larger particles that are less easily blown into the air; they retain moisture so that soils become more coherent; and they can form crusts that mimic the wind resistance of natural soil crusts.

Chemical dust suppressants are often added to water, which acts to disperse the chemicals, and then evaporates after application. The chemicals that are left behind coat the particle surfaces and bind the soil particles together. Most products are designed for moderately traveled, low cost roads, and are used to stabilize shoulders of paved roads and to temporarily stabilize construction sites.

When used to stabilize heavily trafficked areas, these products typically require ground preparation prior to application, as well as reapplication one to four times a year to remain effective. The crusting or binding of soil particles does not need to be nearly as strong for areas that will not be trafficked by vehicles, because the binding needs only to withstand the force of the wind. Therefore, stabilization of untrafficked areas requires much less of the chemical, less ground preparation, and less frequent reapplication.

For greatest effectiveness and lowest cost, it's important to follow the manufacturer's instructions for mixing and applying these chemicals, which will likely depend on the intended use of the area. Some of these chemicals tend to suppress plant establishment and growth (which may be an added benefit where weed control is desired), and some may affect water quality if treated soils are allowed to wash into drainages.

Soil stabilizers such as mulches increase the organic content of sandy, dry soils. They provide soil structure and the organic materials bind with clay and sand to reduce erosion; they also increase the ability of soils to retain moisture. Some types of mulch require

tilling to integrate them into the upper layer of soil, if they are to be effective in dust control.

4. Smart Timing: A Cost-Effective Approach to Dust Control

In many cases, proper timing of the land disturbance and/or the application of the control measure may make dust control affordable, with little reduction in effectiveness. Based on data from this county for 1996 through 1999, over 60% of the days with unhealthful levels of windblown dust occurred during the months of February through April, and over 80% were during January through June. For an activity that temporarily creates a potential source of windblown dust, this means that by planning a dust causing activity so that the erosion susceptibility is within the July to December period would, on average, be 80% effective in controlling dust. No direct costs (such as for chemical dust suppressants, water, water trucks, labor, etc.) would be incurred. If indirect costs (relating to financing, lost business opportunities, and so forth) are not prohibitive, this can be a highly cost-effective method of dust control. An added benefit is that environmental impacts from water use or introduction of chemicals into the environment are minimized.

If the potential dust source is expected to continue for many months or years, timing the application for optimal effectiveness can reduce the costs of short-term control measures such as watering or using chemical dust suppressants. Applying these methods to provide control only during the months of January through June could cut the cost of control by as much as half, while decreasing overall effectiveness by only 20% on average. For certain sources and control methods, the "smart timing" approach might even be feasible over shorter time periods. For example, decisions on water application could be determined by daily wind forecasts.

For areas that have the potential to be dust sources indefinitely or for many years, repeated application of short-term control measures might be more costly in the long run. Therefore, permanent controls such as paving or revegetation may by more cost effective, even though the permanent controls have a higher initial cost. Costs, effectiveness and environmental impacts all may vary from case to case.

LOCAL ORDINANCES AND STAKEHOLDER AGREEMENTS

LOCAL ORDINANCES

The NMED/AQB believes that local stakeholders and governments are best equipped to deal with this type of local situation and that they should maintain control of development and implementation of solutions as appropriate. The City of Las Cruces developed and adopted Ordinance No. 1789, on April 7, 2000, strengthening wind erosion control language. The Doña Ana County Board of Commissioners voted to adopt Doña Ana County Ordinance No. 194-2000 Erosion Control Regulations, on December 15, 2000. The purpose of both ordinances is to protect and maintain the natural environment and to

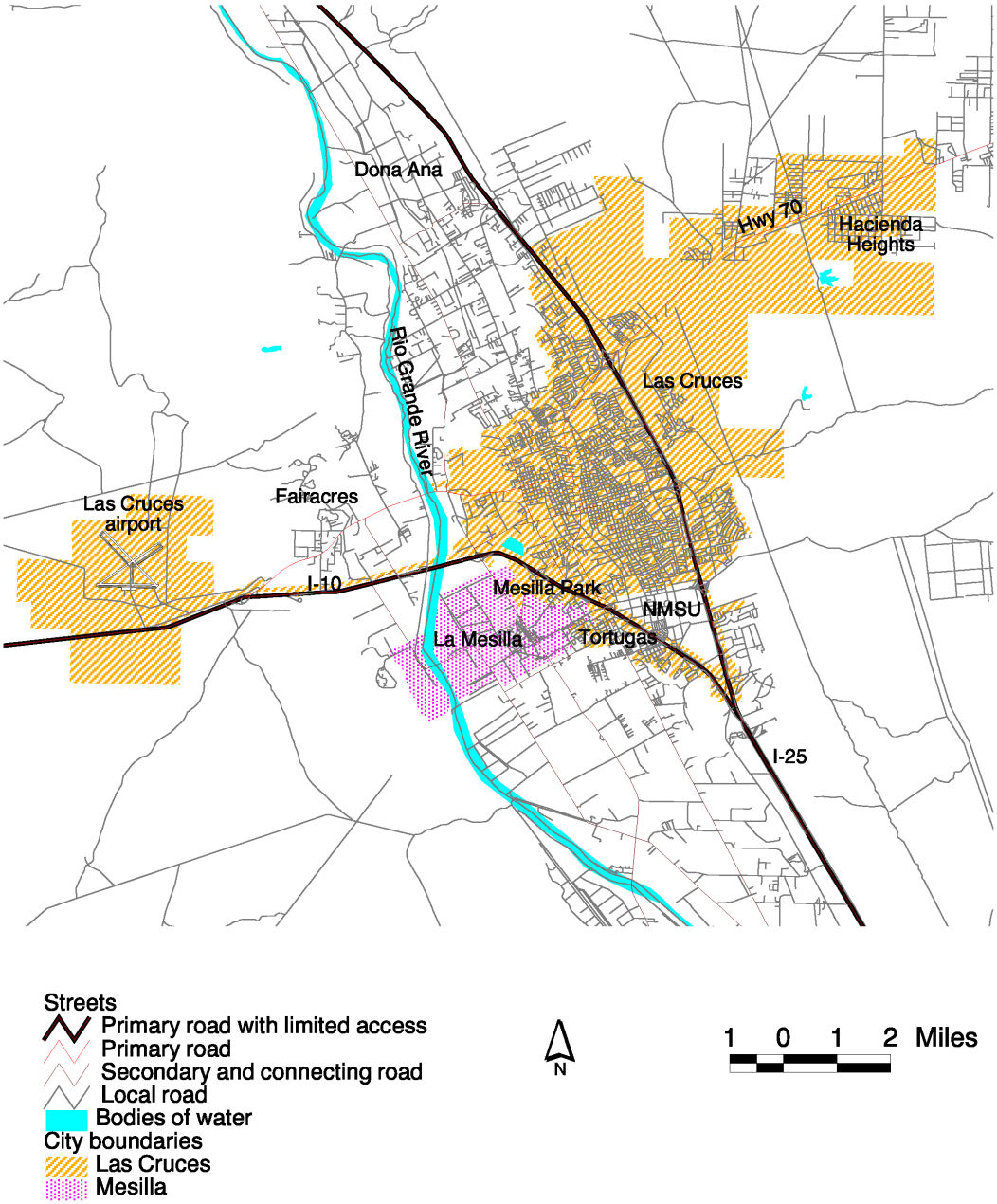

Figure 4. Las Cruces and Mesilla city boundaries.

reduce the negative health effects caused by the creation of fugitive dust. A copy of each ordinance can be found in Appendix D.

A. City of Las Cruces

The City of Las Cruces, the largest metropolitan area within the county, has taken an active role in developing an ordinance that will limit the amount of dust from sites within the city limits (figure 4). Very early on in the NEAP process, the city was concerned with the possibility of being designated non-attainment and the associated consequences. In response, the planning staff for the city assumed a leadership role in establishing a stakeholder group to identify contributing human-caused sources of windblown dust within the city. Furthermore the group worked to identify stakeholders that many be important to the BACM implementation process portion of the NEAP. From there the city developed and adopted a new dust control ordinance to deal with windblown dust in a satisfactory matter. The stated intent of the document "is to prevent the contribution of man-made dust production on a regular basis." It is further "intended to realize that when natural events do occur, such as fugitive dust creation through high winds, the contribution of man-made dust is limited in its negative health and safety impacts."

B. Doña Ana County

The commitment of Doña Ana County to protect the health of its citizens and growing economy has been demonstrated by the passing of more strict dust control measures found within the newly adopted Doña Ana County Ordinance No. 194-2000 Erosion Control Regulations. The objective of the Ordinance is to ensure that all surface disturbance activities use erosion control measures to mitigate visible fugitive dust on an ongoing basis for the protection of health and safety of the residents. The ordinance was designed to accomplish this goal by preventing, limiting, or mitigating the effects of activities which create fugitive dust or have a tendency to make land more vulnerable to natural erosion that creates fugitive dust.

STAKEHOLDER AGREEMENTS

The NMED, in its quest to help develop an effective and adequate NEAP for Doña Ana County has been working with those identified primary stakeholders to take voluntary steps to reduce PM10 from property and facilities that they control. These primary stakeholders, due to federal ruling, must comply with local applicable ordinances. However, enforceability is ambiguous on federal and state owned installations, therefore reassurance was sought through stakeholder agreements. A copy of each stakeholder agreement can be found in Appendix E.

A. New Mexico State University

As a prominent leader in the community, New Mexico State University (NMSU) realizes the benefits associated with controlling airborne dust and has taken appropriate steps to demonstrate their commitment toward community service and well-being. Also, NMSU

sees possible opportunities for research and testing of dust control and that the opportunities of such pursuits benefit the entire community, as well as others dealing with similar problems.

The University controls various large portions of land throughout the County:

1. The Main Campus is approximately 900 acres. Approximately half of this area is developed. The majority of the disturbed yet undeveloped lands lie within the main campus. Unpaved parking lots are the major source of dust.
2. Adjacent to the Main Campus, across Interstate-25 (I-25), NMSU owns approximately 2600 acres, including the golf course, two leased areas, and other relatively small facilities (ie. college rodeo arena). The majority of this acreage is undisturbed native land. The principal dust source is unpaved roads.
3. Agriculture-related areas include the Fabian Garcia Horticulture Farm (42 acres) and the NMSU Horse Center (52 acres) located in Mesilla Park. Both are usually under cultivation and/or permanent pasture, which serve to stabilize the soil, and are not considered major windblown dust generators.
4. Other agriculture-related acreage away from populated areas includes the Leyendecker Plant Science Center and the Jornada Experimental Range. The Leyendecker Plant Science Center, a 206-acre farm located along the Rio Grande River 8 miles south of the main campus, is under active irrigated cultivation most of the year and is not considered to be a large source of dust. The Jornanda Experimental Range is NMSU's largest land holding in Doña Ana County with approximately 64,000 acres and is located northeast of Las Cruces, north of Highway 70, primarily between I-25 and the San Andres Mountain Range. It is used for rangeland research, and mostly in a native vegetative state. Neither of these holdings has any significant population downwind nor even remotely close by.

Most of NMSU's holdings away from the main campus are either undisturbed or stabilized by cultivation, following soil conversation practices, and not likely to generate large amount of human caused windblown dust. Furthermore, these remote areas are not likely to impact large populations with any dust that may be generated. However, the main campus has significant disturbed areas that are not yet developed. There are people living on the main campus as well as adjoining areas who can be impacted by wind generated dust. Moreover, the main campus receives greater daily use, which limits the ability of disturbed areas to stabilize naturally. Therefore, NMSU has focused initial dust control efforts on the main campus and adjacent land holding (approximately 3500 acres).

NMSU is committed to analyzing, developing and implementing appropriate dust control measures, as well as minimizing disturbance of natural areas. The catalog of potential dust sources shows the most significant sources to be unpaved roads and unpaved parking. For more detailed information on the plan, including short term and long term control methods please see the attached stakeholder agreement (Appendix E).

B. New Mexico Highway and Transportation Department

The New Mexico State Highway and Transportation Department (NMSHTD) recognizes that recent exceedances of the NAAQS PM10 standard in Doña Ana County could result in a Federal designation to "non-attainment". The NMSHTD is providing this stakeholder agreement, with dust control and abatement plan, to satisfy conditions of the NEAP, and in support of efforts to keep Doña Ana County regarded as a clean and pleasant area in which to live.

The NMSHTD has determined what activities they do that could increase the generation of windblown dust and affect populated areas with such PM10 emissions. To view source descriptions please refer to the stakeholder agreement in Appendix E. Anticipated sources could be located throughout the county on state-controlled roads, overpasses/underpasses, bridges and interchanges that will undergo construction, modification or repair. It is estimated that 70 miles of state or federally funded road work or related construction will occur in Doña Ana County between 2001-2004. Proximity of potential sources to populated areas will vary greatly depending in location. Size of disturbances, as well as frequency and longevity, will also vary depending on the project.

High priority for dust control consideration will be all construction activity that is within one-mile of any populated area. The priority of sites will be based upon the significance of impacts to nearby human populations.

This dust control plan will assure that environmental and human health concerns are fully considered in the necessary environmental documentation for projects performed within the County. The NMSHTD will take prudent measures to avoid and/or minimize environmental impacts. Additionally, the NMSHTD will incorporate reasonable steps into enforceable construction contracts as stated in a Memorandum of Understanding (MOU) between the NMSHTD and the NMED, dated November 2, 1994. The NMSHTD will comply with all applicable provisions of federal, state and local environmental laws, and ensure compliance with particulate provisions of these laws. To review the control plan in more detail including the MOU and excerpts from the NMSHTD Standard Specifications for Highway and Bridge Construction, Section on Air Quality and Dust Abatement, see the stakeholder agreement in Appendix E. These actions will ensure both short and long-term dust abatement and control measures effectively control fugitive dust from NMSHTD project sites located within Doña Ana County.

C. White Sands Missile Range

White Sands Missile Range (WSMR) is located in the Tularosa Basin of south-central New Mexico, in the counties of Doña Ana, Otero, Sierra, Socorro, and Lincoln. The boundaries of the range extend approximately 100 miles south to north and 40 miles east to west. The range is the largest military installation in the U.S., encompassing 3200 square miles. The range is located primarily on the eastern side of the Organ and San

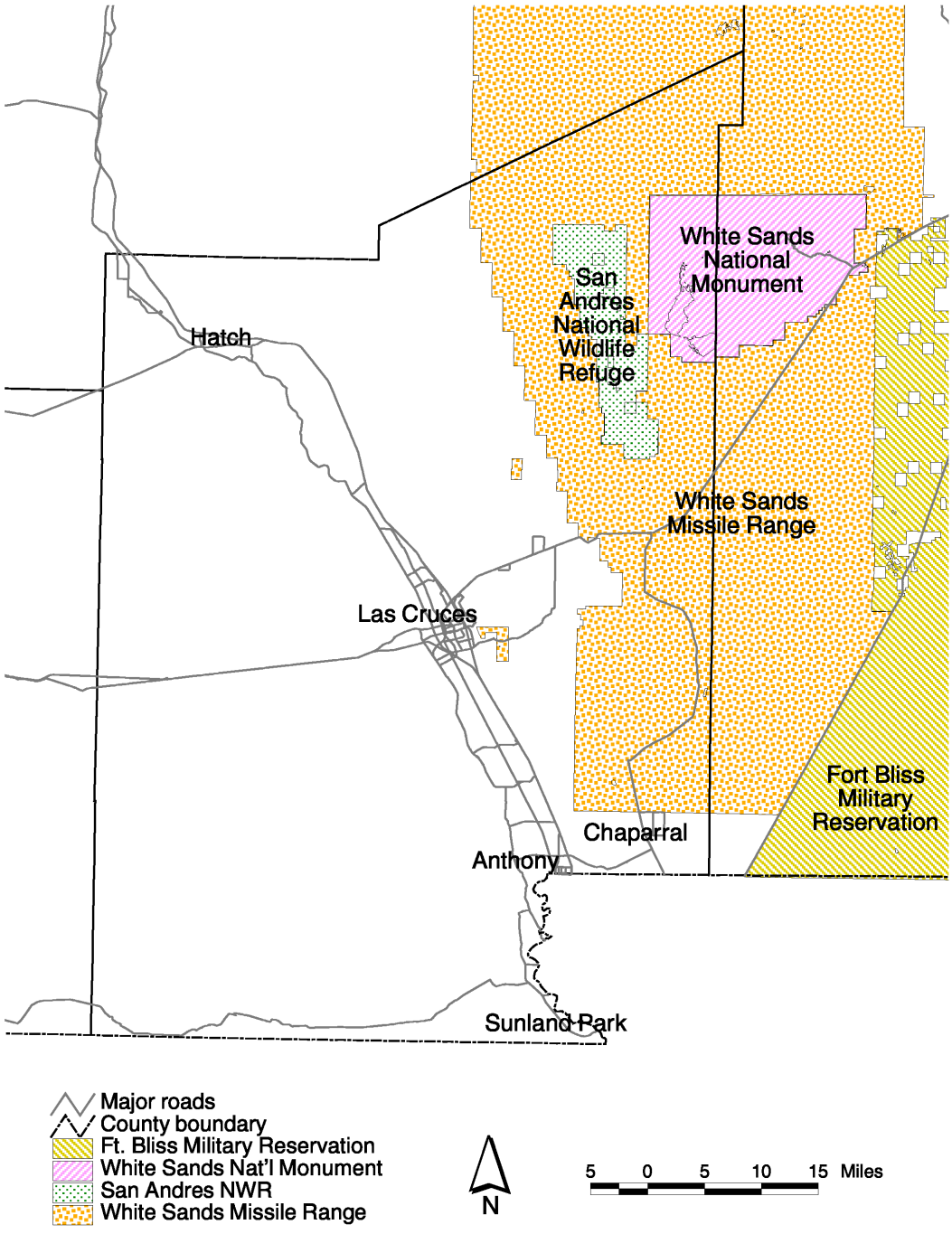

Figure 5. Locations of military facilities in and around Doña Ana County.

Andres Mountains in Doña Ana County, with the headquarters area 20 miles east of Las Cruces (refer to figure 5).

White Sands Missile Range is a multi-service test range whose main function is the support of missile development and testing programs for the Army, Navy, Air Force, National Aeronautics and Space Administration (NASA), other government agencies and private industry (Fact Sheet: White Sands at a Glance). The range falls under the operational control of the U.S. Army Developmental Test Command (DTC), Aberdeen Proving Ground, Maryland. Personnel at WSMR are highly trained and are a mix of military, civilian and contractor employees. About half of the range employees live in the Las Cruces area while others commute from El Paso, Alamogordo and other New Mexico areas. According to 1999 statistics there are 1100 family members living on the post, with the noon-time population on post about 7000 individuals. The range's impact on the local economy is large, spending about $1,000,000 a day in the region through salaries and local contract dollars.

While WSMR is located in the county, it is unlikely that it poses a threat to the larger populated areas in the county. However, it may have an affect on the post population and possibly the community of Chaparral. Most of the county's population is concentrated in the Mesilla Valley located on the west side of the Organ Mountains, while the range lies on the east side. Furthermore, the high winds typically associated with PM10 exceedances are generally from a westerly or southwesterly direction.

White Sands Missile Range is working with NMED/AQB in the development of a stakeholder agreement (Appendix E), supporting efforts of the Doña Ana County NEAP. Prior to contact with WSMR, the range had already contracted an outside consulting firm to develop a particulate matter monitoring plan leading to dust control plan development. The range itself has needs for dust control from a mission impacts standpoint. Part of the weapons research involves the use of optical instruments and lasers, and dust can adversely affect the use of this equipment. Upon learning of the County's exceedances of the PM10 standard, WSMR agreed to expand the scope of their dust control needs to include the NEAP and protection of public health. The range is currently developing a Particulate Matter Control Plan. Furthermore, WSMR intends to follow county ordinances regarding erosion control and construction where practical and when it is not in conflict with the mission of WSMR.

OTHER STAKEHOLDERS

This category has been separated out because of the unique situation represented by each of the following entities. These quasi stakeholders have control and/or influence over very large tracts of land that are either administered through Federal or State regulation.

Since the catastrophe of the Dust Bowl in the mid 1930, soil erosion by wind and even water has been a major concern for those tasked with managing agricultural farm and rangelands.

A. Natural Resource Conservation Service (NRCS)

Doña Ana County has 96,030 acres of irrigated land, nearly all of which lies within the Rio Grande river valleys of Mesilla and Rincon. Wind erosion from irrigated croplands is much less than that from disturbed lands and even rangelands. One major reason for this is found within the characteristics of the irrigated soil itself. Irrigated soils are generally better developed in structure and texture and have some degree of moisture at all times. Most of the cropland in Doña Ana County is on soils that form stable, nonerodible aggregates (clods) when tilled, thus protecting the surface from wind erosion even when the soil is considered dry and is not covered with plants.

The farming community is greatly influenced by their local conservation districts and the NRCS, formerly the Soil Conservation Service (SCS). Conservation districts operate under the premise that local people know the most about local needs. They link NRCS with their communities and with local priorities for soil and water conservation. The two conservation districts working within Doña Ana County are the Caballo Soil and Water Conservation District (SWCD), in the north, and La Union SWCD in the south. Farmers work with their local conservation districts and NRCS field staff to develop and implement soil conservation plans specifically designed for the soil types and crops of each individual farm. The practices can come from either best management practices (BMPs) adopted by the conservation district and/or those identified by NRCS.

Under the 1990 amendments to the Food Security Act (FSA) growers who receive crop subsidies, loans or other assistants through the U.S. Department of Agriculture (USDA) are required to develop conservation farm plans. A farm plan is a comprehensive plan of BMPs a grower will use on their farm to minimize erosion and environmental impacts.

Farming within Doña Ana County is very progressive and intensely managed, due to the types of high value crops (chile, onions, lettuce, pecans, cotton, alfalfa hay, etc.) grown in the area. Some of the practices implemented by Doña Ana County farmers as provided by the local NRCS office include:

- In the spring, farmers immediately pre-irrigate following plowing, disking and furrowing, drastically reducing the amount of loose soil available to wind erosion.
- Many pecan producers are practicing no-till and reduced till methods that are also extremely effective in preventing soil erosion.
- Crop rotations and residue management is also applied to the land as a conservation measure to ensure sufficient organic matter is returned to the field, thus allowing for soil aggregation, which is a strong deterrent to wind erosion.
- Many producers plant a cover crop done for the sole purpose of reconditioning the soil with additional organic matter in order to have a more manageable and stable soil structure.

Furthermore, in continuing efforts to provide for conservation programs on privately held lands, the 1996 Farm Bill authorized a Conservation for Private Grazing Lands technical assistance program. The NRCS has a specific responsibility to assist owners and operators of grazing lands in planning and applying conservation programs on privately controlled land. The mission of this program is "to provide quality assistance to the owners and managers of rangeland, pastureland and other grazed lands using appropriate science and technology to manage, enhance, and, where necessary, restore these grazing land ecosystems.

B. Bureau of Land Management (BLM)

While Doña Ana County is not one of the larger producers of cattle in the state in terms of numbers, its total amount of land is primarily considered to be desert rangeland and lies outside of the Rio Grande river valleys. Of the total 2,434,560 acres in the county, 75% (1,821,515 acres) is federal land, primarily controlled by the Department of Defense (WSMR) and the BLM, with a small amount of state owned land (12%of the total) scattered throughout the BLM lands (see figure 6). Much of this rangeland is used for multiple purposes (such as grazing, recreation, wildlife, mining, etc.) and is administered by the BLM. The BLM administers livestock grazing on federal land under the authority of the Taylor Grazing Act of 1934 as well as the Bankhead-Jones Farm and Tenant Act, National Environmental Policy Act (NEPA), etc. The Taylor Grazing Act sought "to stop injury to the public grazing lands by preventing overgrazing and soil deterioration; to provide for their orderly use, improvement, and development; and to stabilize the livestock industry dependent upon the public range." These laws direct the BLM in its responsibility to authorize and manage livestock grazing under the principles of multiple use and sustained yields, and further to prevent the degradation of rangeland resources by providing for their orderly use, improvement, and development.

Soil erosion is influenced by climate, topography, soil properties, soil condition, cover, and land use. Of all of these factors, soil cover is most important (USDI, BLM 1994 Rangeland Reform Draft EIS). Cover and land use are the two factors where the BLM can influence erosion control. Research indicates that a minimum cover value of 20 % is needed to prevent wind erosion. Cover values of 30 to 40 % are generally associated to arid lands where cover is naturally sparse (USDI, BLM 1994 Rangeland Reform Draft EIS).

By the 1990's, the BLM had ensured that most of the allotment stocking rates in New Mexico were consistent with the grazing capacities established by rangeland surveys and monitoring. In 1995, the BLM reported that only 4 % New Mexico's public lands showed a downward trend, for which a combination of factors may be responsible, with a major contributor appearing to be the loss of the fire cycle. Also in 1995, 41 % of the public lands showed an upward trend and 55 % were considered static (USDI, BLM 1995 - National Range Inventory Report). A static trend is one where the current condition has stabilized, and often exists where optimum conditions have been achieved, where the land is dominated by brush species, and at the lower seral stages. To improve these situations the BLM, working with individual ranchers, develop rangeland programs that

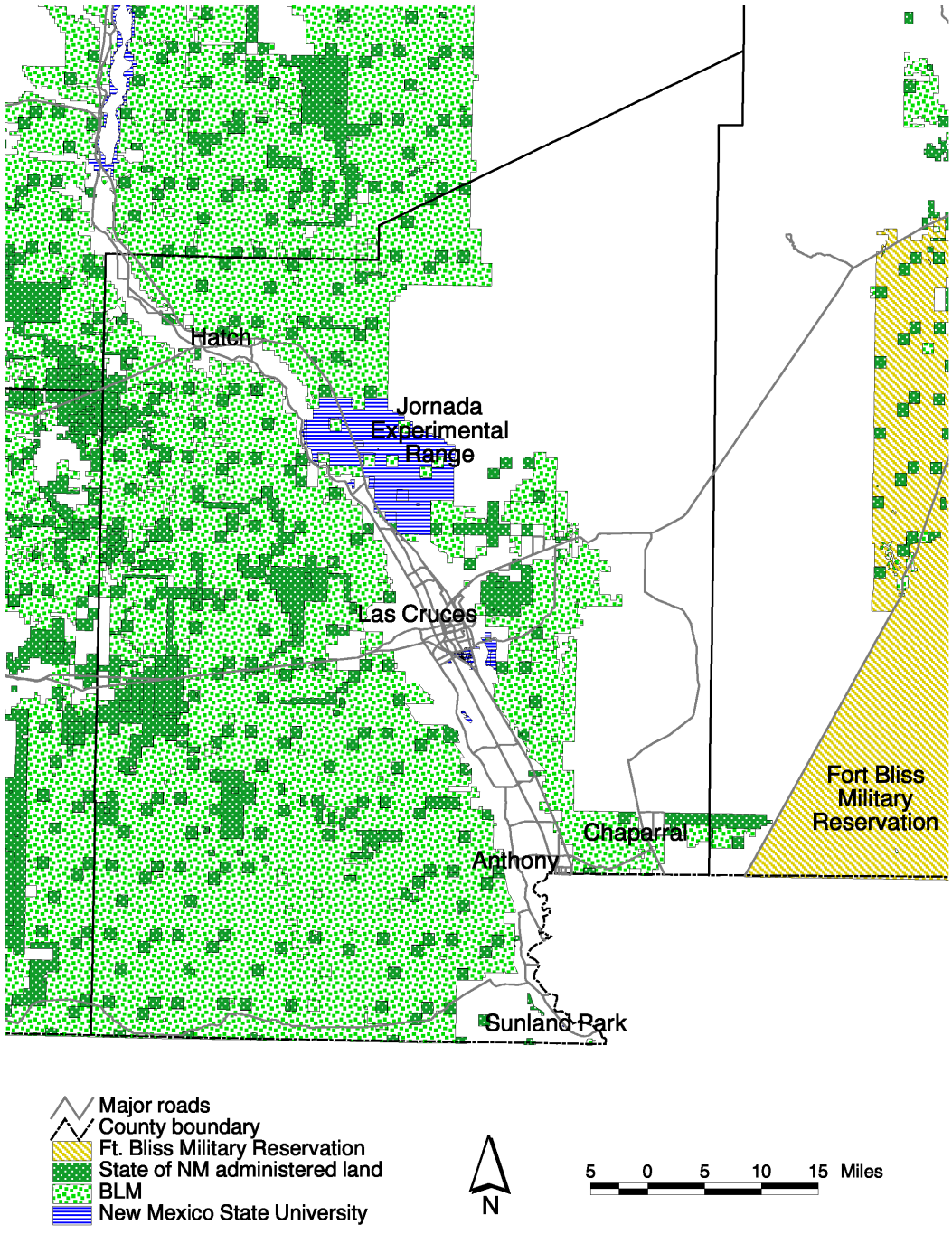

Figure 6. Bureau of Land Management, State administered and New Mexico State University land in and around Doña Ana County.

include improved grazing distribution, grazing deferment, and brush control in effort to increase herbaceous vegetation, thus increasing ground cover.

The BLM uses the term Activity Plans to identify site specific management plans on grazing allotments. Also, the BLM uses, as part of the policy in identifying and categorizing allotments, the selective management process. The selective management categories include: 1) "M - Maintain Category" are allotments with few resource related issues and generally management and condition are satisfactory; 2) "C - Custodial Category" are allotments with limited management opportunities either environmentally or economically; and 3) "I - Improve Category" are allotments where there are many management issues, as well as ample management opportunities for improvement and change. Through the selective management process the BLM directs funds and planning efforts. This process is done through consultation, cooperation and coordination with interested and affected publics as outlined by the BLM's grazing regulations and other laws (Public Rangeland Improvement Act of 1978).

A variety of management tools are available to properly manage grazing on public lands in accord with the multiple use mandate. These include grazing systems, rangeland improvements and their proper placing, fire, salting, and others. A report by EPA Region VI, titled "New Mexico Best Management Practices Study, July 30, 1998," documents the BLM implementation of BMPs. The study looked at 20 randomly selected BLM grazing sites and found 265 practices implemented which could be considered BMPs (New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management, April 2000).

C. Fort Bliss Military Reservation

Fort Bliss Military Base headquarters area is located in El Paso County, Texas, just south of the New Mexico - Texas state line, on the east side of the Franklin Mountains. The land holdings controlled by Fort Bliss Military base are unlikely to be a prime source of windblown dust for most of Doña Ana County's populated areas. Most of the high wind events creating blowing dust and exceedances of the PM10 standard have a prevailing wind direction of westerly or southwesterly. However, the Sources and Controls Working Group felt that lands within Doña Ana County, managed and utilized by Fort Bliss maybe a significant source of dust for Chaparral, NM.

Fort Bliss has supplied the NMED with a letter supporting the Doña Ana County NEAP (Appendix E). This letter describes the primary source of dust to be unpaved roads and the efforts utilized to limit dust from those sources. Since Fort Bliss is a military training facility, public access is restricted. Currently they are controlling dust from their major identified source of windblown dust, dirt roads, by limiting access and speed. Ground disturbing activities are limited to primarily training mobilization and maneuvers, with little other disturbance. Furthermore, the Range is not open to recreational off-road use.

D. Camino Real Landfill

Camino Real Landfill is located in Sunland Park, just below the west side plateau. The property is privately owned by Camino Real Environmental Center Inc. Permit writers from NMED/AQB have been working with Camino Real Landfill on their Title V Operating Permit application, which should be finalized early in the year 2001. While Title V permits may generally include control measure for fugitive dust sources such as haul roads, Camino Real Environmental Center Inc. has agreed to include a dust control plan within their Title V Operation Permit in support of the Doña Ana County NEAP.

The purpose of the dust control plan is to limit particulate matter emissions into the ambient air from any property, operation or active that may serve as a fugitive dust source at the Camino Real Landfill. The effect shall be to minimize the amount of PM10 and TSP entrained into the ambient air as a result of the impact of human activities by requiring measure to prevent, reduce, or mitigate particulate matter emission. All terms ad conditions contained in the Department approved Landfill Dust Control Plan submitted by the applicant or permittee are incorporated by reference into this permit and are fully enforceable under federal and state laws. Attachment 2, Camino Real Landfill Dust Control Plan, for the Camino Real Landfill Title V Operating Permit is provided in Appendix E. Refer to AQB's Title V Operating Permit # P186L, available from the Bureau, to review the entire permit document.

LETTERS SUPPORTING THE NEAP PROCESS

A. State Of New Mexico Economic Development Department

While the state's Economic Development Department (EDD) is not a true stakeholder in the sense of this document's definition, it is an important entity in providing information for business coming into the state. The EDD has provided the NMED with a letter (see Appendix F) supporting the NEAP, committing to sharing information with their clients in Doña Ana County, as well as providing referrals for information.

B. Letter from NMED Supporting Doña Ana County Erosion Control Ordinance

A letter dated December 15, 2000, was sent to each individual member of the Board of Commissioners for Doña Ana County from Peter Maggiore, NMED Cabinet Secretary. This letter states the Department's support for the erosion control ordinance developed by the County's planning staff. The letter states "… NMED feels that the proposed erosion control regulation ordinance as submitted by Doña Ana County for your review does provide an adequate level of dust control needed to limit the amount of dust within the county limits." A copy of the letter can be found in Appendix F.

C. Letter from EPA-Region VI

A letter dated December 14, 2000, was sent to Peter Maggiore, Cabinet Secretary for NMED, from Thomas Diggs, EPA Region VI Air Planning Section Chief, supporting the Departments efforts toward developing a NEAP to address Doña Ana County's PM10 exceedance situation. This letter also expresses support of the County's proposed Erosion Control Regulations Ordinance. A copy of the letter can be found in Appendix F.

STAKEHOLDER INVOLVEMENT AND PUBLIC REVIEW

This section describes the public process used to develop this NEAP. Again, stakeholders are defined as "those that have responsibility for potentially significant, human-caused sources of windblown dust" and general public as "interested parties."

STAKEHOLDER INVOLVEMENT

The EPA's NEAP development guidance states the NEAP should be developed by the State in conjunction with the stakeholders affected by the plan. Numerous meetings, mailings, electronic correspondence, and/or telephone conversations occurred with all the identified potentially affected stakeholders from the State and local government levels. The final ordinances and agreements reflect the control measures that each stakeholder offered in support of the Doña Ana County NEAP. Information related to these ordinances and stakeholder agreements can be found in above referenced appendices.

This NEAP process started out with the forming of two stakeholder groups to work with government officials and experts on several of the required elements of the NEAP. The first group formed was called the Health Issues Working Group and included individuals from local government, locally-based State Health Department staff, local health care providers and members of a public health advocacy group. A list of participants for Health Issues work group may be found in Appendix G. The task of this group was to develop a plan and materials for the health related requirements of the NEAP.

A second group was convened to work on identifying sources of human-caused wind generated dust and how to go about controlling those sources. This working group was called the Sources and Control Working Group and included staff from the local governments' planning departments, technical experts in civil engineering and wind erosion, and representatives from the construction industry and agriculture sector.

In efforts to assist the County Planning staff explain the need for a NEAP in Doña Ana County, two meetings were held. The first meeting took place on February 10, 2000, during a regularly scheduled Planning and Zoning Commission meeting, where NMED/AQB staff made a presentation explaining the County's present PM10 situation, why PM10 is a health concern, and what a NEAP has to offer for addressing the problem reasonably. A second meeting was held on May 3 with the County manager and planning

staff, a representative from County Roads, and the Public Relations Officer. This meeting was set up with EPA Region VI representatives and NMED/AQB staff involvement. County Commissioners were also invited and encouraged to attend this opportunity to meet with EPA Region VI and ask question about the NEAP and non-attainment, however, none where able to attend.

Further stakeholder involvement has progressed through additional stakeholder meetings. For supporting information on these meetings please see Appendix H. The NMED/AQB newly formed NEAP team, in efforts to finalize the Doña Ana County NEAP, held its first Stakeholder Meeting on October 17, 2000. All stakeholders identified from the local and state levels were encouraged to attend. This meeting included three presentations concerning non-attainment and the NEP, as well as the PM10 situation in Doña Ana County. Presenters included staff from EPA-Region VI, NMED/AQB, and two local engineering and environmental consulting firms. Furthermore, this meeting provided an opportunity for venders of dust control products to introduce their products, and included an open house section with the NEAP poster session, titled "Keeping Growth Up and Dust Down in Doña Ana County: A Plan for Protecting the Public's Health, Economic Growth, and Natural Vistas". A television interview was also given to a local public station, located at NMSU, by NMED/AQB staff and several stakeholders and vendors.

A second Stakeholders Meeting was held, November 20, 2000, in Santa Fe, NM, for the benefit of the NMSHTD, State Department of Education, and State Economic Development Department. Again presentations were made about non-attainment and the NEP by staff from EPA Region VI and NMED/AQB.

PUBLIC REVIEW

The NMED/AQB has made documentation available for, and presented the NEAP to, the public in an effort to ensure ample public review and comment. Supporting documentation can be found in Appendices A, B, C, and H.

- The original NEAP and Addendum were made available to interested parties as requested for review.
- A web page was developed in February 1999 for Air Quality Issues in Doña Ana County to provide the public information on the PM10 problem. Web site address is www.nmenv.state.nm.us, under Air Quality Bureau.
- Presentation to the Doña Ana County Planning and Zoning Commission, February 10, 2000, by Brad Musick, Environmental Engineer, AQB and Kimberly Kirby, Environmental Scientist, AQB.
- Presentation given at the New Mexico Lung Health Summit in June 28, 2000, titled "Air Quality Trends in New Mexico" by Kimberly Kirby, Environmental Scientist, AQB.
- Presentation given at the New Mexico Environmental Health Conference in on July 18, 2000, titled "Grappling with Dust Storms and Health in New Mexico: New Mexico's Battle with Windblown Dust" by Kimberly Kirby, Environmental Scientist, AQB. Abstract published in the conference proceedings.

- Mass mailing of letters and attachments to interested parties, stakeholders, and local and state elected officials, first week of September 2000.
- Doña Ana County NEAP open houses titled "Keeping Dust Down & Growth Up in Doña Ana County: A Plan for Reducing Dust, Sustaining Growth, and Protecting Health and Natural Vistas." The open houses were designed to provide information to and solicit ideas from the public on the NEAP. The idea was to create a relaxed atmosphere conducive to soliciting the public's thoughts, ideas, comments, concerns, and complaints in order to tailor the plan to local needs.
    - Open houses were advertised in the Sunday edition of the SunNews (local paper) just before the open houses.
    - Post card announcements were sent out about the open houses, meeting times and locations to our mailing list of stakeholders, interested parties, and elected officials.
    - Advertised though public service announcements by the Public Broadcasting Station located on campus at NMSU.
    - NMED/AQB staff gave two television interviews during the open houses, one to the public station and the other to a local Spanish station.
    - Open Houses were held in:
        - Hatch (northern end of county) during evening hours, October 11, 2000.
        - Sunland Park (southern section of county), all day from 9am-9pm on October 12th and from 9am-5pm on November 8, 2000.
        - Las Cruces (mid section of county), October 13th from 9am-9pm, October 14th from 8am-Noon, November 13th from 1pm to 7pm, and November 14th from 8am to 6pm.
    - Handouts available at the open houses included:
        - Particulate Air Pollution: Air Pollution from Natural Events
        - Dust Storms and Health
        - Best Available Control Measures (BACM) for Reducing Windblown Dust from Manmade Sources in Doña Ana County
        - NEAP Briefing Document
        - The Natural Events Policy Memorandum from Mary D. Nichols, Assistant Administrator for Air and Radiation
        - Natural Events Action Plan for PM10 Exceedances Due to High Wind Events in Doña Ana County (original submitted November 25, 1997)
        - Addendum to Natural Events Action Plan for PM10 Exceedances Due to High Wind Events in Doña Ana County, dated April 3, 1998
        - EPA-Region VI's matrix of NEAP analysis
        - Particulate Air Pollution and Respiratory Disease in Anchorage, Alaska, by M.E. Gordian and others, 1996, *Environmental Health Perspectives*, vol. 104, pp. 290-297.Surveillance for Dust Storms and Respiratory Diseases in Washington State, 1991, by B.J. Hefflin and others, 1994 *Archives of Environmental Health*, vol. 49, pp. 170-174.

    - Graphical information of monitoring data
    - Maps indicating locations of PM10 and PM2.5 monitors in the County
- Open house posters have been transferred to an electric format and are available online at the NMED website under the Air Quality Bureau, as are many of the handouts. Comments can be made, contact phone number and email address are provided.
- Attended county ordinance workshop on December 7, 2000, to make a short NEAP presentation and answer questions.
- NEAP presentation made before the Board of Commissioner for the public hearing on the new erosion control ordinance.
- Final draft available for comment the week of December 18, 2000. This draft was made available to the public through the NMED web page or by request for a hard paper copy. Notification was made through postcard mail-out, electronic mail and advertisement in the local paper.
- A final open house will be held in early January 2001, to provide the public opportunity to view the plan submitted to EPA. Since the NEAP for Doña Ana County will be reevaluated at least every 5 years, comment can be provided continuously.

PERIODIC EVALUATION

PERIODIC EVALUATION

Guidance from the EPA Natural Events Policy requires the State to periodically reevaluate a NEAP for: (a) the conditions causing violations of a PM10 NAAQS in the area, (b) the status of implementation of the NEAP, and (c) the adequacy of the actions being implemented. The State should reevaluate the NEAP for an area at least every 5 years and make appropriate changes to the plan.

The NMED/AQB commits to conducting such an evaluation every 5 years, yet more frequent evaluations may be performed if it is found that the NEAP has not been properly implemented. Furthermore, the NMED/AQB plans to continue working with the various stakeholders in identifying BACM and even possible new potential stakeholders.

SUBMITTAL TO EPA

As mentioned in the introduction the NMED/AQB submitted to EPA-Region VI a NEAP for Doña Ana County dated November 25, 1997. After review by EPA a revision was submitted on April 3, 1998 as an addendum to the original. In further fulfillment for the implementation of the County's NEAP the NMED/AQB has complied this document for the Doña Ana County NEAP superseding previously submitted documents.